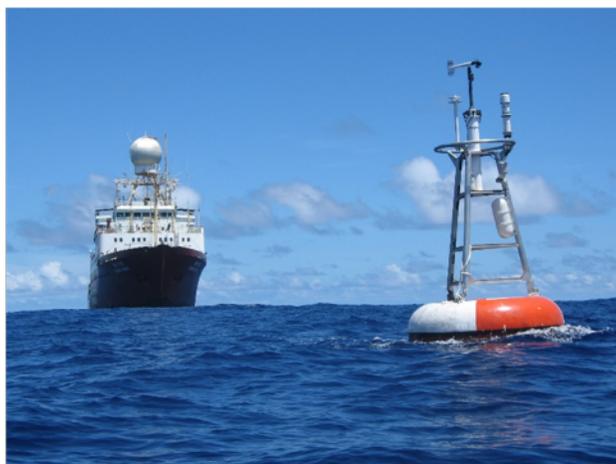


Can You Make a Ball of Clay Float?

Family Marine Science Challenge

About This Activity

Whether working with data collected by weather buoys, using submersible remote-operated vehicles, or sailing on a research vessel, marine scientists rely on the principles of buoyancy to help them explore the ocean.



Weather buoy moored in the Atlantic Ocean with Indian research vessel ORV *Sagar Kanya*. *Image credit: NOAA*

Challenge Instructions

- 1) Find a golf-ball-sized ball of clay or other material that can be submerged in water.
- 2) Put the ball of clay into a tub of water. Does it sink or float?
- 3) Take the ball out of the water.
- 4) Using the entire ball of clay, can you change the shape so that it floats for at least 10 seconds?

5) Now, see how many pennies your design can hold without sinking!

Bonus Challenge: Can You Make Something Neutrally Buoyant?

Neutral buoyancy is achieved when something neither sinks to the bottom nor floats at the surface of a body of water. This is especially important for submersibles like the ones used on Exploration Vessel *Nautilus*. They need to be able to control their buoyancy and hover just above the delicate ocean habitats they are exploring.



ROV *Hercules* over the wreck of the German submarine *U-166* in the Gulf of Mexico.
Image credit: Ocean Exploration Trust/ Nautilus Live

Challenge Instructions

- 1) Gather a variety of household materials. Some should sink, and some should float! (Examples: sponges, pipe cleaners, corks, metal washers, paper clips, clay, etc.)
- 2) Use any combination of these objects to create something you think will be neutrally buoyant.
- 3) Put your design gently into a tub of water. Is it staying in the middle of the water without touching the bottom or floating to the top?
- 4) Modify your design until you've achieved neutral buoyancy!